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Physical Disability and Suicidal Desire: An Examination of the Constructs of the Interpersonal-Psychological Theory of Suicide

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The University of Southern Mississippi

PHYSICAL DISABILITY AND SUICIDAL DESIRE:
AN EXAMINATION OF THE CONSTRUCTS OF THE
INTERPERSONAL-PSYCHOLOGICAL THEORY OF SUICIDE

by

Lauren Rachel Khazem

A Thesis
Submitted to the Graduate School
of The University of Southern Mississippi
in Partial Fulfillment of the Requirements
for the Degree of Master of Arts

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ABSTRACT

PHYSICAL DISABILITY AND SUICIDAL DESIRE: AN EXAMINATION OF THE CONSTRUCTS OF THE INTERPERSONAL-PSYCHOLOGICAL THEORY OF SUICIDE

by Lauren Rachel Khazem

May 2015

The primary aims of this study were to examine constructs of the Interpersonal-Psychological Theory of Suicide (IPTS) in an understudied population. Differences in levels of IPTS variables and suicidal ideation between university students with and without physical disabilities were examined. Participants were 184 students from two Southern universities who provided answers to online-based self-report questionnaires. It was hypothesized that students with physical disabilities would endorse higher levels of all IPTS constructs relative to students without physical disabilities. It was further hypothesized that disability status would exhibit an indirect effect on suicidal ideation through perceived burdensomeness and thwarted belongingness. Results indicated no differences in IPTS variables and suicidal desire between students with and without physical disabilities, and the tests of indirect effects were non-significant. The possibility exists that these null findings were partly due to the limitations of the study. This proposed study is preliminary and will serve to better inform future research regarding suicide and disability status.

DEDICATION

I dedicate this work to everyone who has supported me throughout my education, including my parents, brother, four-legged family members, Zach, and my friends, each of whom has had been an incredible source of encouragement. Thank you all for believing in me.

ACKNOWLEDGMENTS

Special thanks is due to my Major Professor, Dr. Michael Anestis, and my other committee members, Dr. Bradley Green and Dr. Jon Mandracchia for their support and advice throughout this research.

I would also like to thank Dr. Kelly Cukrowicz for the opportunity to begin conducting this research during my undergraduate career and Dr. Danielle Jahn for her mentorship and guidance in creating and implementing this research. Lastly, I wish to express my appreciation to everyone who participated in this research.

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LIST OF ABBREVIATIONS

ACSS-FAD	Acquired Capability for Suicide Scale – Fearlessness About Death
ADA	Americans With Dishabilles Act
ANCOVA	Analysis of Covariance
ANOVA	Analysis of Variance
CES-D	Center for Epidemiologic Studies Depression Scale
DASS	Depression Anxiety Stress Scale
INQ	Interpersonal Needs Questionnaire
IPTS	Interpersonal - Psychological Theory of Suicide
PANSI	Positive and Negative Suicide Ideation Inventory
TTU	Texas Tech University
USM	University of Southern Mississippi

CHAPTER I

INTRODUCTION

Disability is defined as a limitation in performing a normal activity (e.g., walking, driving) (Rokach, Lehcier-Kimel, & Safarov, 2006). Physical disabilities may cause difficulty with dexterity, movement, hearing, and vision (Rokach et al., 2006). Previous research has established a link between chronic illness or disability and suicidal ideation (Dennis et al., 2009; Fisher, Haythornthwaite, Heinberg, Clark, & Reed, 2001; Pirkis, Burgess, & Dunt, 2000; Russel, Turner, & Joiner, 2009; Tweed, Shern, & Ciarlo, 1988) and physical disability and suicide attempts (Ikeda et al., 2001; Shoostary et al., 2008). This link between different types of disability and death by suicide is alarming, as millions of Americans are living with physical disabilities. More specifically, 3.3 million Americans are reported to have a disability affecting hearing, vision, or speaking, while 30.6 million have difficulties with ambulatory activities, and 19.9 million have difficulties with upper body functioning (Brault, 2012).

The desire for suicide can be explained through the Interpersonal-Psychological Theory of Suicide (IPTS; Joiner, 2005). According to the IPTS, the most dangerous form of suicidal desire occurs when two mental states are jointly present (Van Orden et al., 2010). The first state, perceived burdensomeness, is an individual's belief that he or she is a burden to others, and that others would benefit from his or her death. Research has supported the association of perceived burdensomeness with suicidal ideation in diverse populations, including university students (Van Orden, Witte, Gordon, Bender, & Joiner, 2008), older adults (Jahn, Cukrowicz, Linton, & Prabhu, 2011), and deployed military personnel (Bryan, Clemans, & Hernandez, 2012). In those with disabilities, this self-

perceived burden may also stem from feelings of dependence on others (Cousineau, McDowell, Hotz, & Herbert, 2003). A person with a disability may believe that they cause trouble for others because they draw on the resources (e.g., time, finances, and energy). Indeed, feelings of perceived burdensomeness have been found in those living with disabilities. Dempsey, Karver, Labouliere, Zesiewicz, and De Nadai (2012) found that functional impairment related to movement disorders, a type of physical disability, was a predictor of depression, but this relationship was mediated by feelings of perceived burdensomeness in a sample of adults. Furthermore, perceived burdensomeness has also been indicated as a predictor of suicidal ideation in individuals living with chronic pain (Kanzler, Bryan, McGeary, & Morrow, 2012).

The second mental state in IPTS related to suicidal desire, thwarted belongingness, refers to an individual's feelings of isolation and a lack of reciprocal, caring relationships (Joiner, 2005; Van Orden et al., 2010). People experiencing thwarted belongingness may have thoughts such as "I am alone" or "I have nobody to turn to when I'm in need." Recent research has supported an association between thwarted belongingness and both suicidal desire and attempt status (Bryan, Hernandez, Allison, & Clemans, 2013; Joiner et al., 2009; Van Orden et al., 2008). However, research regarding feelings of isolation in individuals with physical disabilities has yielded mixed results. Whereas Rokach et al. (2006) did not find that those with physical disabilities experienced interpersonal isolation, another study found that those with physical disabilities felt ostracized and isolated from peers (Doyle, Moffat, & Corlett, 1994). Furthermore, locations not accessible to those with disabilities have been reported

to be a barrier to engaging in relationships with people who spend time at these locations (Skär, 2003).

As previously mentioned, when perceived burdensomeness and thwarted belongingness are both present, the most dangerous form of suicidal desire may occur (Joiner, 2005; Van Orden et al., 2010). Suicidal ideation alone, however, is insufficient for one to attempt suicide. For most people, suicide is frightening and expected to be painful. The majority of people who think about suicide are unable to carry out an attempt. The IPTS posits that people acquire the capability for suicide through repeated exposure to painful and/or provocative events, which increases pain tolerance and lessens the fear of death and bodily harm (Joiner, 2005; Van Orden et al., 2010). For example, combat exposure, non-suicidal self-injury, and excessive exercise involve experiences that are physically painful, and research have indicated these experiences are associated with higher acquired capability for suicide (Anestis, Khazem, & Law, 2014; Bryan, Cukrowicz, West, & Morrow, 2010; Smith et al., 2013).

It is important to note that no research regarding the acquired capability for suicide in people with physical disabilities currently exists. One purpose of this study is to address this issue by assessing whether individuals with physical disabilities endorse higher levels of the acquired capability for suicide. As individuals living with physical disabilities may experience pain above and beyond that experienced by those without physical disabilities and these disabilities may remind them of their mortality, it is possible that these individuals would have a lower fear of death and a higher pain tolerance than people without disabilities and, consequently, a higher acquired capability for suicide.

In order to strengthen the IPTS, the theory must be empirically tested in different populations. This research will be the first project investigating suicidal desire and physical disability broadly through the lens of the IPTS. The aforementioned research has only examined the associations between disabilities and suicide in a broad sense or has focused on specific types of physical disabilities and their relation to the IPTS and suicide. This proposed study aims to bridge the gap in the literature by examining physical disability and suicidal desire within the framework of IPTS.

In summary, people living with physical disabilities are an understudied segment of the population and are underrepresented in many areas, which may lead to feelings of isolation and a lack of meaningful relationships. Furthermore, as individuals with physical disabilities may need accommodations for work, school, or other activities, feelings of being a burden to others are also expected to be present. As such, there is reason to believe that both components of suicidal desire proposed by the IPTS (perceived burdensomeness and thwarted belongingness) will be elevated in physically disabled populations. As such, suicidal ideation is also expected to be higher in this population.

Based on the aforementioned findings regarding disability status and suicide and IPTS as well as the research supporting IPTS, I hypothesized that individuals with physical disabilities would endorse higher levels of perceived burdensomeness, thwarted belongingness, and acquired capability than would individuals without physical disabilities. Furthermore, perceived burdensomeness and thwarted belongingness are expected to be higher in this population, I expected people with physical disabilities to also endorse higher levels of suicidal ideation than those without physical disabilities.

The acquired capability for suicide is expected to be higher in this population as individuals with physical disabilities may experience events leading to a fearlessness about death. Lastly, I expected that the relationship between disability status and suicidal ideation would be indirect through perceived burdensomeness and thwarted belongingness.

CHAPTER II

METHOD

Participants

Participants in this study were 184 students from the University of Southern Mississippi (USM) and Texas Tech University (TTU; $M_{age} = 22.83$, $SD = 7.71$) recruited from an ongoing study listed on their respective campus' SONA site and campus list serves. The sample was predominately female (76.90%, $n=140$), and most students identified as White (69.41%, $n=112$), followed by African American (29.80%, $n=54$), multiracial (2.2%, $n=4$), Asian, (1.70%, $n=3$), from another race (3.9%, $n=7$), and American Indian (.60%, $n=1$). Of the 184 participants, 49 (27%) endorsed having at least one physical disability. Within this group, the disabilities endorsed involved difficulties with: mobility ($n=24$, 49%), hearing ($n=8$, 16.3%), vision ($n=8$, 16.3%), multiple areas ($n=6$, 12.2%), sleep apnea ($n=1$, 2.0%), bowel and bladder control ($n=1$, 2%) and pain ($n=1$, 2%).

The students completed either a survey for individuals with disabilities or an identical survey for individuals without physical disabilities online through a secure Qualtrics survey link. Students who accessed the study through SONA were given class credit for participation, while those who responded to campus list serve were not compensated for participation. No penalty was given for not participating or not completing the study. Students must have listed at least one physical disability at the beginning of the study in order to be included in the physical disability group. If students participated in the survey for students with physical disabilities and did not endorse at least one physical disability at the beginning of the survey, they were automatically

directed to the control survey. Physical disability status was assessed using the Americans With Disabilities Act (ADA) guidelines¹. Although, these guidelines are broad, and do not contain a complete list of qualifying physical disabilities, it was used as a guide in order to ensure that any student endorsing a physical disability qualified for participation. All responses regarding physical disability status were examined, and if any physical disability did not meet study criteria, the participant's data were deleted. The order of all measures after the demographics and disability related questions was randomized across participants.

Since disability status is an attribute variable that cannot be randomly assigned, and participants volunteered to participate in this study, the sample for this study was collected via convenience sampling. According to analyses of sufficient sample size using G*POWER (Faul, Erdfelder, Buchner & Lang, 2009) approximately 130 participants, including at least 40 participants in the group with physical disabilities were needed to conduct the proposed analyses with .80 power and an effect size of $f^2 = 0.25$

Measures

Physical disability status

Two questions after the demographics section assessed disability status. The first question asked, "Do you have a physical disability (e.g. Do you have a disability effecting mobility, sight, hearing, etc.?)." Participants either answered "yes" and were prompted to explain how it affects their daily life or "no". If a participant answered "no", he or she was not permitted to continue the survey and was immediately directed to the identical survey for students without physical disabilities, and their responses were

¹Physical disability was assessed using the definition used by Americans With Disabilities Act (ADA), which states: Individuals "must have a physical impairment that substantially limits one or more life activities, or have a record of such impairment...that limits or is perceived to limit a major life activity" (ADA, 1990).

deleted. The next question asked, “Please list any physical disabilities you have” and provided a space for text entry.

Perceived Burdensomeness and Thwarted Belongingness

The Interpersonal Needs Questionnaire- 15 Item Version (INQ; Van Orden, Cukrowicz, Witte, & Joiner, 2012) measures thwarted belongingness (9 items; e.g., *These days, I think I am a burden to society*) and perceived burdensomeness (6 items; e.g., *These days, I feel disconnected from others*). All items are scored on a scale from 1 (*Not at all true for me*) to 7 (*Very true for me*), with 6 items reverse scored. The INQ-15 has previously been tested as a measure of perceived burdensomeness and thwarted belongingness in various populations, including undergraduate students, and has demonstrated convergent, divergent, and predictive validity (Van Orden et al., 2012). In this sample, the Perceived Burdensomeness and Thwarted Belongingness subscales of the INQ-15 demonstrated good internal consistency ($\alpha=.94$ and $.92$, respectively.)

Suicidal ideation

The Negative Ideation subscale of the Positive and Negative Suicide Ideation Inventory (PANSI; Osman, Gutierrez, Kopper, Barrios, & Chiro, 1998) measures suicidal ideation (8 items; e.g. *During the past two weeks, including today, how often have you felt hopeless about the future and you wondered if you should kill yourself?*). All items are scored on a scale from 1 (*None of the time*) to 5 (*Most of the time*). This measure has been shown to have acceptable reliability for both positive ($\alpha=.80$) and negative ($\alpha=.91$) items (Gutierrez & Osman, 2008). The PANSI has also demonstrated convergent (Muehlenkamp, Gutierrez, Osman, & Barrios, 2005) concurrent, and predictive validity (Osman et al., 1998). When tested in a sample of ethnically diverse

young adults, reliability was upheld with $\alpha > .70$ for all ethnic groups (Muehlenkamp et al., 2005). In this sample, the Negative Ideation subscale of the PANSI demonstrated good internal consistency ($\alpha = .96$)

Acquired Capability for Suicide

The Acquired Capability for Suicide Scale –Fearlessness About Death (ACSS-FAD; Ribeiro et al., 2014) is 7-item version of the original 20-item ACSS (Bender, Gordon, Bresin, & Joiner, 2011) that was developed through factor analysis and tested in an undergraduate sample. The ACSS-FAD measures acquired capability with items (such as *The fact that I am going to die does not affect me*) scored from 0 (*Not at all like me*) to 4 (*Very much like me*). The ACSS-FAD has been utilized previously in samples of university students (e.g., Witte, Correia, & Angarano, 2013) and has demonstrated divergent and convergent validity (Ribeiro, et al., 2014). In this sample, the ACSS- FAD demonstrated adequate internal consistency ($\alpha = .72$)

Covariates

Covariates were determined empirically by testing for significant associations between the independent and dependent variables and demographic variables.

Age and race

Participants were asked to provide this information in the demographic section at the beginning of the questionnaire. A text entry response was provided to indicate the participant's age.

Depression

Depression severity was assessed through the Center for Epidemiologic Studies Depression Scale (CES-D; Radloff, 1977). The CES-D is a 20-item measure assessing

depressive symptoms. The CES-D has been shown to have high internal consistency in both general ($\alpha=.85$) and clinical ($\alpha=.90$) populations, and has demonstrated construct validity (Radloff, 1977). This covariate was entered in all analyses in order to proactively address criticism that any effects are due to depression severity rather than the IPTS variables themselves. This technique has been utilized in previous studies of IPTS variables (Joiner et al., 2009). In this sample, the CES-D demonstrated good internal consistency ($\alpha=.93$).

Procedures

This study was approved by both the TTU and USM Institutional Review Boards. Students were recruited through both their respective SONA websites and campus listserv emails. All participants were provided informed consent prior to participation. At the end of the study, all participants were also provided a list of local mental health services in case of distress.

Data Analytic Procedures

To test my hypothesis that students with physical disabilities will have higher levels of all IPTS constructs and suicidal ideation, I conducted a series of four Analyses of Covariance (ANCOVA). Perceived burdensomeness, thwarted belongingness, acquired capability, and suicidal ideation served as separate dependent variables and disability status served as the independent variable for each test. To test my proposed tests of an indirect effect of disability status on suicidal ideation through pathways of burdensomeness and belongingness, I used SPSS PROCESS software (Hayes, 2013). Perceived burdensomeness and thwarted belongingness were tested as simultaneous mediators within the same analysis rather than independent mediators in separate

analyses in order to remain consistent with the IPTS model. I utilized 10,000 bootstrap resamples and examined the 95% confidence interval of the indirect effect. For results to be consistent with our proposed mediation model, the confidence interval must not contain 0.

CHAPTER III

RESULTS

Examination of Distributions

Due to the presence of significant skew and kurtosis, perceived burdensomeness and suicidal ideation were rank transformed using Blom's formula, resulting in acceptable skew (<2.20) and kurtosis (<3.58 ; Kline, 2005).

Selection of Covariates

To determine the appropriate list of covariates for the proposed analyses, zero-order correlations among continuous variables (age, depression) and independent variables (acquired capability, burdensomeness, belongingness, and suicidal ideation scores) were examined. Results indicated that age significantly correlated with acquired capability scores ($r=.20, p=.01$). Depression scores significantly correlated with perceived burdensomeness ($r=.70, p<.001$), thwarted belongingness ($r=.74, p<.001$), and suicidal ideation ($r=.50, p<.001$). Descriptive data and intercorrelations are listed in Table 1.

Next, a series of chi-square analyses were conducted to determine the influence of categorical demographic variables on disability status. Results indicated that group differences between genders ($\chi^2(1, N=182)= 5.10, p = .02$), races ($\chi^2(5, N=181)= 12.42, p = .03$), relationship statuses ($\chi^2(3, N=182)= 8.01, p = .05$), the presence of a mental disorder ($\chi^2(1, N=181)= 11.41, p = .001$), and use of services related to mental disorders ($\chi^2(1, N=181)= 13.81, p < .001$) with regards to disability status. Individuals with physical disabilities were more likely to be White, female, single, diagnosed with a mental disorder, and receiving mental health services.

Table 1

Descriptive statistics and intercorrelations for variables utilized in primary analyses

	1	2	3	4	5
1. Disability Status	-				
2. Perceived Burdensomeness	.25**	-			
3. Thwarted Belongingness	.19*	.67**	-		
4. Acquired Capability	.12	.05	.04	-	
5. Suicidal Ideation	.09	.42**	.52**	.07	-
Mean/ %Yes	26.93%	8.33	20.92	14.33	9.19
Standard Deviation/ %No	73.08%	5.32	11.66	6.02	4.02
Minimum	-	6	9	0	8
Maximum	-	36	56	28	33

Note: *= significant at $p < .05$, **= significant at $p < .001$. Perceived Burdensomeness: Interpersonal Needs Questionnaire-Perceived Burdensomeness subscale; Thwarted Belongingness: Interpersonal Needs Questionnaire-Thwarted Belongingness subscale; Acquired Capability: Acquired Capability for Suicide-Fearlessness About Death Scale; Suicidal Ideation: Positive and Negative Suicide Ideation Inventory-Negative subscale

I lastly assessed for differences in age based on physical disability status using an ANOVA. Results further indicated that age should be included as a covariate, as there were significant differences between the two groups, $F(1, 176) = 23.53, p < .001$, with those with physical disabilities endorsing a higher mean age than those without physical disabilities. Age, sex, race, relationship status, presence of a mental disorder, depression, and use of services related to mental disorders were thus included as covariates in all analyses.

Preliminary Analyses

A total of 26 (15.76%) students reported current suicidal ideation in the full sample. A total of 10 (22.73%) individuals with physical disabilities reported current suicidal ideation, and amongst individuals without disabilities, a total of 16 (13.22%) reported current suicidal ideation.

A total of 20 (11.05%) students reported at least one lifetime suicide attempt in the full sample. Those who reported a history of suicide attempts were asked to provide the number of times they have attempted suicide through text entry responses. Of these individuals who responded, 50% ($n=10$) had attempted suicide only once, 30% ($n=6$) had attempted suicide twice, and 15% ($n=3$) had attempted suicide three or more times.

Amongst individuals with disabilities, a total of 8 (16.33%) reported one or more lifetime attempts, with 75% ($n=6$) attempting suicide once, 12.5% ($n=1$) attempting suicide twice, and 12.5% ($n=1$) attempting suicide three times. Amongst individuals without disabilities, a total of 12 (9.09%) reported one or more lifetime attempts, with 33.30%

($n=4$) attempting suicide once, 41.70% ($n = 5$) attempting suicide twice, and 16.60% ($n=2$) attempting suicide three or more times².

Primary Analyses

A series of ANCOVAs were conducted to assess for differences between individuals with physical disabilities and those without a physical disability. The first analysis assessed whether individuals with physical disabilities endorsed high levels of perceived burdensomeness than individuals without physical disabilities. Results of the first model revealed no significant differences in perceived burdensomeness between groups ($F(1,143)=.63, p=.43, d=.13$). However, it should be noted that when the analysis was performed without the depression scores covariate, the model was significant ($F(1,156)=4.89, p=.03, d=.35$), with individuals with physical disabilities endorsing higher levels of perceived burdensomeness.

The next ANCOVA assessed for differences in thwarted belongingness between individuals with and without physical disabilities. Results indicated no significant group differences in thwarted belongingness ($F(1, 138)=.33, p=.57, d=.09$). When the analysis was conducted without the depression covariate, no significant differences in thwarted belongingness were present between individuals with and without physical disabilities.

The next ANCOVA assessed for differences in the acquired capability for suicide. Results indicated no significant differences in the acquired capability for suicide between individuals with and without physical disabilities ($F(1, 139)=.14, p=.71, d=.06$).

The last ANCOVA assessed for differences in suicidal ideation between groups. Results indicated no significant differences in suicidal ideation between individuals with

² Suicide attempt status was assessed by a demographic question asking whether each participant had attempted suicide with “Yes” and “No” as the answer choices.

and without physical disabilities ($F(1,138)=1.17, p=.28, d=.18$). When depression scores were removed from the model, there remained no differences in suicidal ideation between individuals with and without physical disabilities. Results of the ANCOVAs are listed in Table 2.

A test of indirect effects utilizing 10,000 bootstrap resamples through IBM SPSS PROCESS was then conducted to assess whether physical disability status exhibits an indirect effect on suicidal ideation through perceived burdensomeness and thwarted belongingness. Age, race, gender, relationship status, the presence of a mental disorder, use of mental services, and depression scores were entered as covariates in the models. Results indicated that there was neither a significant direct or indirect effect of physical disability status on suicidal ideation. When the model was examined without depression scores as a covariate, there were still no significant direct or indirect effects of physical disability status on suicidal ideation. Results of the test of indirect effects are listed in Table 3

Table 2

Mean Differences Between Individuals With and Without Physical Disabilities on IPTS Variables and Suicidal Ideation

	Physical Disability		No Physical Disability		<i>F</i>	<i>p</i>	<i>d</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
Perceived Burdensomeness	10.00	6.32	7.88	5.08	.633	.43	.13
Thwarted Belongingness	20.16	1.47	21.18	.80	.33	.57	.09
Acquired Capability	13.82	1.08	14.31	.56	.14	.71	.06
Suicidal Ideation	8.22	.73	9.60	.38	1.17	.29	.18

Note: *= significant at $p < .05$, **= significant at $p < .001$; Perceived Burdensomeness: Interpersonal Needs Questionnaire-Perceived Burdensomeness subscale; Thwarted Belongingness: Interpersonal Needs Questionnaire-Thwarted Belongingness subscale; Acquired Capability: Acquired Capability for Suicide-Fearlessness About Death Scale; Suicidal Ideation: Positive and Negative Suicide Ideation Inventory-Negative subscale. Means and standard deviations reflect nontransformed Perceived Burdensomeness and Suicidal Ideation variables, but tests of between group differences are drawn from transformed totals

Table 3

Results from test of indirect effects

Independent Variable	Dependent Variable	Path	Coefficient	SE	95% CI lower	95% CI upper	Indirect effects				
							Mediator	Bootstrap coefficient	SE	95% CI lower	95% CI upper
Disability	Ideation	Total	-.023	.038	-.116	.036	PB	-.001	.022	-.116	.036
		Direct	-.161	.131	-.421	.099	TB	-.031	.033	-.130	.009
							PB and TB	.008	.013	-.010	.048

Note: *= significant at $p < .05$, **= significant at $p < .001$; PB=Perceived Burdensomeness: Interpersonal Needs Questionnaire-Perceived Burdensomeness subscale; TB= Thwarted

Belongingness: Interpersonal Needs Questionnaire-Thwarted Belongingness subscale; Ideation: Positive and Negative Suicide Ideation Inventory-Negative subscale.

CHAPTER IV

DISCUSSION

The primary aim of this study was to examine whether individuals with physical disabilities endorsed greater perceived burdensomeness, thwarted belongingness, acquired capability, and suicidal ideation than students without physical disabilities. I first hypothesized that students with physical disabilities would endorse higher levels of perceived burdensomeness, thwarted belongingness, the acquired capability for suicide, and suicidal ideation. Results did not support my hypothesis, as after controlling for covariates, specifically depression, there were no significant differences in each variable between students with and without physical disabilities. As previously discussed, before accounting for depression scores, differences in perceived burdensomeness were significant with those with physical disabilities endorsing higher levels of perceived burdensomeness.

The lack of significance between groups may be partially due to the measure of depression utilized. The CES-D contains questions that may actually measure perceived burdensomeness and thwarted belongingness rather than the symptoms of depression (“I felt just as good as other people”, “I felt lonely”, “People were unfriendly”, “I felt that people disliked me”). Therefore, the possibility exists that when accounting for variance in depression in the series of ANCOVAs and regressions, perceived burdensomeness and thwarted belongingness were also partially accounted for in this covariate, obscuring results. In future studies, the CES-D will not be used to measure depression. Instead, I will utilize measures that have been more commonly used in research examining IPTS constructs and suicidal ideation, such as the Depression Anxiety Stress Scale (DASS;

Lovibund & Lovibund, 1995), as questions in this measure do not appear to measure perceived burdensomeness or thwarted belongingness.

It is also possible that depression may be caused by perceived burdensomeness and thwarted belongingness instead of reflecting these constructs. Therefore, the possibility exists that when I controlled for depression, the results of the study were impacted due to the assumption that depression is a causal variable. In this sense, my approach may have spuriously attributed variance to depression that is more accurately attributed to thwarted belongingness and perceived burdensomeness, thereby spuriously diminishing findings. This possibility is highlighted by the significant findings when depression was not included as a covariate. This uncertainty regarding the direction of causality indicates the need for future longitudinal research exploring these relationships.

Another issue may lie in the level of depression in the sample. The mean CES-D score for the overall sample was 14.90. For those without physical disabilities, the mean was 13.46, and the mean for those with physical disabilities was 18.75. As the commonly utilized cutoff score for screening for depression using CES-D is 16 (Ikeda et al., 2001; Krupp, LaRocca, Muir-Nash, & Steinberg, 1990; Weissman, Sholomskas, Pottenger, Prusoff, & Locke, 1977; Zich, Attikisson, & Greenfield, 1990), and 61 of the 162 individuals who completed the CES-D in the full sample (38%) scored at or above the cutoff for depression, it can be seen that a large portion of the sample scored above the commonly applied clinical cutoff. Furthermore, in the group of individuals with physical disabilities, 22 of the 44 respondents (50%) scored at or above the cutoff for depression. In the group of individuals without physical disabilities, 39 of the 118 respondents (33%) scored at or above the cutoff for depression. This largely depressed sample may have

also influenced the results as depression has repeatedly been indicated as a predictor of suicidal ideation (Dennis et al., 2009; Dvorak, Lamis, & Malone, 2013). Future studies should aim to sample from the community at large, which, in conjunction with the use of another measure of depression, may produce more a representative sample of individuals with depressive symptoms.

As previously stated, future research is needed to examine whether the IPTS is applicable to this population. If the results of the anticipated future study in other samples of individuals with physical disabilities indicate that perceived burdensomeness and thwarted belongingness do not predict suicidal ideation, the interesting possibility that the IPTS does not apply to this population would arise. If this were the case, it could be inferred that the pathway to suicidal ideation is indeed different in this population of individuals. As depression scores were consistently higher in those with physical disabilities and also accounted for significant amounts of variance in our analyses, this variable may truly be a better indicator of suicidal desire than the IPTS variables. Suicide prevention efforts may then be best focused on recognizing and reducing depressive symptoms in individuals with physical disabilities.

The lack of significant difference between groups regarding the acquired capability for suicide may indicate that individuals with physical disabilities do not acquire the capability for suicide through disability-related events as hypothesized. This may be partly due to the nature of disabilities endorsed by individuals. For instance, it is possible that those with disabilities involving chronic pain may indeed have a higher acquired capability for suicide than others with physical disabilities that do not involve pain and the general population of individuals without a physical disability. However,

the small sample size of individuals with disabilities prevented splitting the sample of those with physical disabilities into groups of differing disabilities. Furthermore, the ACSS-FAD only measures one aspect of the acquired capability for suicide, fearlessness about death. The possibility still exists that individuals with physical disabilities may endorse higher levels of comfort with bodily harm and tolerance of pain. Future research aims to collect a larger sample of individuals with varying types of physical disabilities and utilize measures of pain tolerance in order to address these limitations.

It is also possible that there truly is no difference in levels of the acquired capability for suicide between individuals with and without physical disabilities. If the future research of this construct in this population indicates this is the case, and perceived burdensomeness, thwarted belongingness, and suicidal ideation are indeed present in this population, research and suicide prevention efforts may be best served in focusing on the effects of perceived burdensomeness and thwarted belongingness in those with physical disabilities.

Given that our sample was comprised of university students, the results may not be representative of the population of individuals with physical disabilities as a whole. Since it is possible that university students with physical disabilities may have more independence, less functional impairment, less severe disabilities, and more support through campus resources (such as support groups and university-based disability services) than those with physical disabilities that are not able to attend a university, lower levels of all IPTS variables and suicidal ideation may have been endorsed, thereby obscuring between group differences that might otherwise be present.

Despite this study's limitations, it holds significance for future research and clinical efforts. It indicates a need for future research regarding the application of the IPTS model to this specific population. It is expected that, with a more representative sample and better measures, the results will support the hypotheses for this research. However, if future studies replicate these results, the possibility that another theory may be needed to identify the reasons with individuals with physical disabilities die by suicide should be considered. Suicide prevention strategies for this population of individuals can then be created and implemented with more certainty.

APPENDIX A

INSTITUTIONAL REVIEW BOARD NOTICE OF COMMITTEE ACTION



TEXAS TECH UNIVERSITY
Vice President for Research

March 18, 2013

Dr. Kelly Cukrowicz
Psychology
Mail Stop: 2051

Regarding: 503887 Physical disability, Suicide Risk Factors, and Suicide Ideation in College Students

Dr. Kelly Cukrowicz:

The Texas Tech University Protection of Human Subjects Committee approved your claim for an exemption for the protocol referenced above on March 18, 2013.

Exempt research is not subject to continuing review. However, any modifications that (a) change the research in a substantial way, (b) might change the basis for exemption, or (c) might introduce any additional risk to subjects must be reported to the Human Research Protection Program (HRPP) before they are implemented.

To report such changes, you must send a new claim for exemption or a proposal for expedited or full board review to the HRPP. Extension of exempt status for exempt protocols that have not changed is automatic.

The HRPP staff will send annual reminders that ask you to update the status of your research protocol. Once you have completed your research, you must inform the HRPP office by responding to the annual reminder so that the protocol file can be closed.

Sincerely,

A handwritten signature in black ink that reads "Rosemary Cogan".

Rosemary Cogan, Ph.D., ABPP
Protection of Human Subjects Committee



THE UNIVERSITY OF
SOUTHERN MISSISSIPPI

INSTITUTIONAL REVIEW BOARD
118 College Drive #5147 | Hattiesburg, MS 39406-0001
Phone: 601.266.6820 | Fax: 601.266.4377 | www.usm.edu/irb

NOTICE OF COMMITTEE ACTION

The project has been reviewed by The University of Southern Mississippi Institutional Review Board in accordance with Federal Drug Administration regulations (21 CFR 26, 111), Department of Health and Human Services (45 CFR Part 46), and university guidelines to ensure adherence to the following criteria:

- The risks to subjects are minimized.
- The risks to subjects are reasonable in relation to the anticipated benefits.
- The selection of subjects is equitable.
- Informed consent is adequate and appropriately documented.
- Where appropriate, the research plan makes adequate provisions for monitoring the data collected to ensure the safety of the subjects.
- Where appropriate, there are adequate provisions to protect the privacy of subjects and to maintain the confidentiality of all data.
- Appropriate additional safeguards have been included to protect vulnerable subjects.
- Any unanticipated, serious, or continuing problems encountered regarding risks to subjects must be reported immediately, but not later than 10 days following the event. This should be reported to the IRB Office via the "Adverse Effect Report Form".
- If approved, the maximum period of approval is limited to twelve months.
Projects that exceed this period must submit an application for renewal or continuation.

PROTOCOL NUMBER: 13091204

PROJECT TITLE: **Physical Disability, Suicide Risk Factors, and Suicide Ideation in College Students**

PROJECT TYPE: **New Project**

RESEARCHER(S): **Lauren Khazem**

COLLEGE/DIVISION: **College of Education and Psychology**

DEPARTMENT: **Psychology**

FUNDING AGENCY/SPONSOR: **N/A**

IRB COMMITTEE ACTION: **Expedited Review Approval**

PERIOD OF APPROVAL: **09/27/2013 to 09/26/2014**

Lawrence A. Hosman, Ph.D.
Institutional Review Board

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